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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,285	09/27/2005	Hans Joachim Quenzer	1033033-000030	1550
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EXAMINER AZIZ, KEITH T				
ART UNIT 1791		PAPER NUMBER		
NOTIFICATION DATE 04/30/2009		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

# Office Action Summary

## Application No.

10/551,285

## Applicant(s)

QUENZER ET AL.

## Examiner

KEITH T. AZIZ

## Art Unit

4122

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 24-32 is/are pending in the application.
- 4a) Of the above claim(s) 4-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 24-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date 9/27/2005
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

1. Claims 4-23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 4/13/2009.
2. Applicant's election without traverse of claims 1-3, and 24-32 in the reply filed on 4/13/2009 is acknowledged.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 24-26, and 28-29 are rejected under 35 U.S.C. 102(b) as being anticipated by international patent application WO 01/38240, of which U.S. Patent Application 2005/0239228 (Quenzer hereafter) is being used as an English translation.

Quenzer discloses a method for producing micromechanical and micro-optic components consisting of glass-type materials (see title). Quenzer teaches providing a first substrate (see paragraph [0022]) with a surface containing impressions (see paragraphs [0056] and [0066] as well as item 4 in Figure 3), over which a second substrate (see paragraph [0022]) composed of a glass-type material (see paragraph [0022]) is placed in a manner that partially overlaps the first substrate (see Figure 3),

and is joined under vacuum (see paragraph [0015]). Quenzer further teaches that the substrate composite is tempered (see paragraph [0022]) in such a manner that the second substrate softens and flows into impressions of the first substrate (see Figure 3), where the side away from the first substrate forms into a microlens surface, and that there are at least two impressions on the first substrate that control shape, size, and curvature of the surface (see Figure 3).

With regard to claim 2, Quenzer teaches that the first substrate has an impression into which the softened second substrate flows during the tempering process to form a concave surface at the surface opposite the first substrate (see Figure 3). Quenzer further teaches that the first substrate has two impressions, separated by a fillet, into which the softened second substrate flows, and that the size, shape, and curvature of the lens surface is determined by the second impression (see Figure 2).

With regard to claim 3, Quenzer teaches that a first substrate, which contains at least two impressions separated by intermediate filler, forms a convex surface in a softened material due to lateral flowing off of the softened material (see Figure 6).

With regard to claim 24, Quenzer teaches that a metal layer is placed between the first and second substrate (see paragraph [0029]).

With regard to claim 25, Quenzer teaches a structured surface that adheres to an equation where the width is less than half of the thickness (see paragraph [0062]).

With regard to claim 26, Quenzer teaches that the first substrate is a semiconductor substrate (see Abstract), and that the glass-type material is a borosilicate glass (see Claim 11, as well as paragraph [0011]).

With regard to claim 28, Quenzer teaches that anodic bonding joins the first and second substrates (see paragraph [0011]).

With regard to claim 29, Quenzer teaches that the temperature and duration of annealing can be changed to different settings, as required by the desired lens properties (see paragraph [0011]).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claim 30 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Quenzer.

Quenzer teaches the processes of claim 1 as discussed above.

Quenzer further teaches that a third substrate is placed on the side of the second substrate facing away from said first substrate (see claim 19). Quenzer further teaches that dents should be formed on the face turned away from the substrate (see paragraph [0011]). It would have been obvious to utilize a third substrate with impressions, since Quenzer teaches that dents are preferably formed on the face turned away from the substrate. The rationale to do so would have been the motivation to generate microlenses in any variation of shape after removal (see paragraph [0011]).

8. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Quenzer as applied to claims 1-3, 24-26, and 28-29 above, and further in view of U.S. Patent Application 2003/0020399 (Moller hereafter).

Quenzer teaches the process of claim 1, as discussed above.

Quenzer does not explicitly teach the use of a polymer-based plastic material as a glass-type material.

Moller discloses a microlens array for display intensity enhancement. Moller teaches the use of polymeric materials, including plastic, as a microlens substrate (see paragraph [0035]). It would have been obvious to one of ordinary skill in the art at the time of invention to include the plastic polymer of Moller in the process of Quenzer. The rationale to do so would have been the motivation provided by the teaching of Moller that polymers provide benefits in both cost effectiveness and ease of manufacturing (see paragraph [0037]).

9. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Quenzer as applied to claims 1-3, 24-26, and 28-29 above, and further in view of U.S. Patent 2002/0130986 (Richard hereafter).

Quenzer teaches the processes as discussed above, Quenzer further teaches that there is a gaseous medium introduced into the impressions (see paragraph [0022]), which displaces the second substrate to form the desired microlens surface (see paragraph [0022]).

Quenzer does not explicitly teach making a replication mold from the finished product.

Richard discloses a method for making an illuminator for a liquid crystal display. Richard teaches that a master mold for a two dimensional array is formed from a positive mask (see paragraph [0018], as well as figures 2-6).

It would have been obvious to one of ordinary skill in the art at the time of invention to include the master-mold-process of Richard in the processes of Quenzer. The rationale to do so would have been the motivation provided by the teaching of Quenzer that doing so forms a mold master having an extremely fine intercavity pitch (see Abstract).

10. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Quenzer and Richard as applied to claim 31 above, and further in view of Moller.

Quenzer and Richard teach the process of claim 31, as discussed above.

Quenzer and Richard do not expressly teach that the microlens surface is a polymer substrate.

Moller discloses a microlens array for display intensity enhancement. Moller teaches the use of polymeric materials, including plastic, as a microlens substrate (see paragraph [0035]).

It would have been obvious to one of ordinary skill in the art at the time of invention to include the plastic polymer of Moller in the process of Quenzer and Richard. The rationale to do so would have been the motivation provided by the teaching of Moller that polymers provide benefits in both cost effectiveness and ease of manufacturing (see paragraph [0037]).

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following documents are cited to show the state of the art with respect to microlens formation.

Japanese Patent Application 2000-241607 to Hosoda et al., drawn to a micro-array formation method.

Japanese Patent Application 2001-158021 to Tejima et al., drawn to a mold master for microlens array and its manufacturing method.

U.S. Patent 6,721,101 to Daniell, drawn to a lens array.

U.S. Patent 5,973,844 to Burger, drawn to a method for producing a lenslet array.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEITH T. AZIZ whose telephone number is (571)270-7658. The examiner can normally be reached on Monday through Friday 8:00am-5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (571)272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KTA/

/Timothy J. Kugel/  
Primary Examiner, Art Unit 1796